Nos. 79-1429, 79-1583

IN THE

Supreme Court of the United States

OCTOBER TERM, 1980

AMERICAN TEXTILE MANUFACTURERS INSTITUTE, INC., ET AL.,

Petitioners

v.

RAY MARSHALL, SECRETARY OF LABOR,

Respondent

NATIONAL COTTON COUNCIL OF AMERICA,

Petitioner

v.

RAY MARSHALL, SECRETARY OF LABOR,

Respondent

On Writ of Certiorari to the United States Court of Appeals for the District of Columbia Circuit

---

BRIEF OF THE AMERICAN INDUSTRIAL HEALTH COUNCIL AS AMICUS CURIAE

ROBERT C. BARNARD
CLEARY, GOTTLIEB, STEEN & HAMILTON
1250 Connecticut Avenue, N.W.
Washington, D.C. 20036
(202) 828-3000

Of Counsel:

RICHARD DEC. HINDS
R. BRUCE DICKSON
ERIC C. JEFFREY

Attorneys for The American Industrial Health Council, Inc.

WILSON - EPES PRINTING CO., INC. - 789-0096 - WASHINGTON, D.C. 20001

TABLE OF CONTENTS

	Page
INTEREST OF AMICUS CURIAE	2
SUMMARY OF ARGUMENT	3
ARGUMENT	5
I. OSHA FAILED TO COMPLY WITH SECTIONS 3(8) AND 6(b)(5) OF THE ACT IN ISSUING THE COTTON DUST STANDARD	5
A. OSHA Misconstrued the Requirements of Sections 3(8) and 6(b)(5)	5
B. OSHA Failed To Consider Adequately the Alternatives to its Lowest Feasible Approach	8
II. OSHA MUST ASSESS THE COSTS AND BENEFITS OF ITS STANDARD	9
A. The Statutory Language Requires That OSHA Exercise an Informed Judgment Regarding the Effects of its Standard	11
B. The Legislative History Demonstrates That Congress Intended OSHA to Balance the Negative and Positive Effects of Its Standard	13
C. Several Circuits Have Required OSHA to Consider Costs and Benefits	16
D. Administrative Interpretation Supports a Requirement That OSHA Consider Costs and Benefits	17
E. Similar Statutes Have Been Interpreted as Requiring a Cost/Benefit Analysis	18
F. Practical Considerations Demonstrate the Need for a Cost/Benefit Analysis	19
III. OSHA'S INTERPRETATION OF THE ACT PRECLUDED IT FROM ADEQUATELY CONSIDERING ALTERNATIVE APPROACHES, COSTS AND BENEFITS	22
CONCLUSION	25

TABLE OF AUTHORITIES

CASES: Page

American Federation of Labor & Congress of Industrial Organizations v. *Marshall*, 617 F.2d 636 (D.C. Cir. 1979) 6, 7, 9, 10, 19
American Petroleum Institute v. *Occupational Safety & Health Administration*, 581 F.2d 493 (5th Cir. 1978), *aff'd on other gds. sub nom., Industrial Union Department* v. *American Petroleum Institute*, 48 U.S.L.W. 5022 (June 24, 1980) 2, 5, 7, 8, 9, 10, 12, 13, 15, 16, 21, 22, 24
Aqua Slide "N" Dive v. *Consumer Product Safety Commission*, 569 F.2d 831 (5th Cir. 1978) 18
Castle & Cooke Foods, 5 OSHC (BNA) 1435, 1977-78 OSHD (CCH) ¶ 21,854 (1977) 18
Continental Can Co., 4 OSHC (BNA) 1541, 1976-77 OSHD (CCH) ¶ 21,009 (1976) 17
D.D. Bean & Sons v. *Consumer Product Safety Commission*, 574 F.2d 643 (1st Cir. 1978) 18
Dry Color Manufacturers Association v. *Department of Labor*, 486 F.2d 98 (3d Cir. 1973) 9
Florida Peach Growers Association v. *Department of Labor*, 489 F.2d 120 (5th Cir. 1974) 17
Forester v. *Consumer Product Safety Commission*, 559 F.2d 774 (D.C. Cir. 1977) 18
Great Falls Tribune Co., 5 OSHC (BNA) 1443, 1977-78 OSHD (CCH) ¶ 21,844, *appeal docketed*, No. 77-2566 (9th Cir. 1977) 17
Hess & Clark v. *Food and Drug Administration*, 495 F.2d 975 (D.C. Cir. 1974) 12
Industrial Union Department v. *American Petroleum Institute*, 48 U.S.L.W. 5022 (June 24, 1980) 2
KLI, Inc., 6 OSHC (BNA) 1097, 1977-78 (OSHD (CCH) ¶ 22,350 (1977), *appeal dismissed*, 601 F.2d 589 (6th Cir. 1979) 17
Republic Granite Co., Inc., 4 OSHC (BNA) 1711, 1976-77 OSHD (CCH) ¶ 21,167 (1976) 18

TABLE OF AUTHORITIES—Continued

	Page
RMI Co. v. *Secretary of Labor*, 594 F.2d 566 (6th Cir. 1979)	16
Sims v. *United States*, 252 F.2d 434 (4th Cir. 1958), *aff'd*, 359 U.S. 108 (1959)	7
Skidmore v. *Swift & Co.*, 323 U.S. 134 (1944)	7
Turner Co. v. *Secretary of Labor*, 561 F.2d 82 (7th Cir. 1977)	16
United Parcel Service of Ohio, Inc. v. *Occupational Safety & Health Review Commission*, 570 F.2d 806 (8th Cir. 1978)	16
West Point Pepperell, Inc., 5 OSHC (BNA) 1257, 1977-78 OSHD (CCH) ¶ 21,733, *aff'd*, *Marshall* v. *West Point Pepperell*, 588 F.2d 979 (5th Cir. 1979)	17
Worley Brothers Granite Co., 4 OSHC (BNA) 2042 (1977)	18
Zuber v. *Allen*, 396 U.S. 168 (1969)	7

STATUTES AND REGULATIONS:

Consumer Product Safety Act, 15 U.S.C. § 2058 (c)(2)(A)	18
Occupational Safety and Health Act of 1970, 29 U.S.C. § 651 *et seq.*	passim
Section 3(8), 29 U.S.C. § 652(8)	passim
Section 6(b)(5), 29 U.S.C. § 655(b)(5)	passim
Section 6(f), 29 U.S.C. § 655(f)	24
Section 6(g), 29 U.S.C. § 655(g)	13
Standard for Occupational Exposure to Benzene, 43 *Fed. Reg.* 5918 (Feburary 10, 1978)	2
Standard for Occupational Exposure to Cotton Dust, 43 *Fed. Reg.* 27350 (June 23, 1978)	2, 5, 23
Identification, Classification and Regulation of Potential Occupational Carcinogens, 45 *Fed. Reg.* 5002 (January 22, 1980)	2
29 C.F.R. § 1990.142(a)(2), 45 *Fed. Reg.* 5285-5286	6

TABLE OF AUTHORITIES—Continued

	Page
43 *Fed. Reg.* 22254 (May 24, 1978)	21
40 *Fed. Reg.* 19439 (May 5, 1975)	21
MISCELLANEOUS:	
115 Cong. Rec. 22517 (daily ed. Aug. 6, 1969)	13
Currie, *OSHA*, 1976 Am. Bar Foundation Research J. 1107 (1976)	11, 12
COWPS, Comments of the Council on Wage and Price Stability on Proposed Standard for Exposure to Cotton Dust (June 17, 1977)	20
COWPS, Report submitted by the Council on Wage and Price Stability on behalf of the Regulatory Analysis Review Group in regard to the Proposed Standard for Occupational Exposure to Acrylonitrile (May 19, 1978)	20, 21
Legislative History of the Occupational Safety and Health Act of 1970, 92d Cong., 1st Sess. (1971) (Comm. Print)	13, 14, 15, 16
National Academy of Sciences, "Decision Making for Regulating Chemicals in the Environment" (1975)	20
OSHA Press Release, "OSHA Comments on Supreme Court Benzene Decision," July 2, 1980	22
The Shorter Oxford English Dictionary (1944)	12
Webster's New Collegiate Dictionary (1979)	12

IN THE

Supreme Court of the United States

OCTOBER TERM, 1980

No. 79-1492

AMERICAN TEXTILE MANUFACTURERS INSTITUTE, INC., ET AL.,

Petitioners,

v.

RAY MARSHALL, SECRETARY OF LABOR,

Respondent

No. 79-1583

NATIONAL COTTON COUNCIL OF AMERICA,

Petitioner

v.

RAY MARSHALL, SECRETARY OF LABOR,

Respondent

On Writ of Certiorari to the United States Court of Appeals for the District of Columbia Circuit

---

BRIEF OF THE AMERICAN INDUSTRIAL HEALTH COUNCIL AS AMICUS CURIAE

INTEREST OF AMICUS CURIAE

The cotton dust standard [1] is premised upon the same erroneous statutory construction that OSHA followed in the benzene standard [2] and in its recent generic carcinogen regulations.[3] That interpretation has severely restricted OSHA's assesment of workplace hazards and the nature of controls which OSHA claims are required under the Act.

OSHA has, in effect, rewritten the Occupational Safety and Health Act of 1970, 29 U.S.C. §§ 651 *et seq.* (the Act) to delete the statutory language which requires it to consider alternative approaches to risk reduction and to assess the costs and benefits of its standards. In lieu of that language, OSHA has substituted the concept of reducing exposure to the "lowest feasible" level, although those words appear nowhere in the Act. In formulating the cotton dust standard, OSHA applied its "dust control strategy" to require that dust levels be reduced to the lowest feasible level.[4] In issuing the benzene standard and in its generic carcinogen regulations, OSHA has taken the position that Section 6(b)(5) of the Act [5] mandates a risk free level of exposure and, if a risk free level has not been demonstrated to exist or cannot be achieved, the lowest feasible level.

---

[1] Standard for Occupational Exposure to Cotton Dust, 43 *Fed. Reg.* 27350 (June 23, 1978).

[2] Standard for Occupational Exposure to Benzene, 43 *Fed. Reg.* 5918. (February 10, 1978), reviewed *sub nom.* Industrial Union Department v. American Petroleum Institute, 48 U.S.L.W. 5022 (June 24, 1980) (hereinafter cited as "*Benzene*").

[3] Identification, Classification and Regulation of Potential Occupational Carcinogens, 45 *Fed. Reg.* 5002 (January 22, 1980).

[4] 43 *Fed. Reg.* 27358.

[5] Relevant sections of the Act are set forth in Appendix A to this *amicus* brief.

The American Industrial Health Council, Inc. (AIHC) is an organization of 137 companies and 75 participating trade associations representing a wide spectrum of American industry. It was formed specifically to develop a broadly based industrial position in the rulemaking proceedings in which OSHA's generic carcinogen regulations were developed.[6] In that proceeding AIHC proposed an alternative approach for developing standards that did not incorporate OSHA's traditional "lowest feasible level" approach. The final generic carcinogen regulations, however, require that OSHA's erroneous statutory construction be applied in all future occupational safety and health standards relating to carcinogens. The generic regulations are currently being challenged in the courts.[7]

Because of its broad industrial representation and because of its participation in the OSHA generic carcinogen regulations rulemaking, AIHC believes that it's participation as an *amicus* in support of petitioners will give the Court an appreciation of the broader context in which OSHA's erroneous statutory interpretation is being applied.

SUMMARY OF ARGUMENT

AIHC will limit its discussion to the validity of OSHA's "lowest feasible" interpretation. Several issues are raised by OSHA's adherence to its traditional approach.

First, must OSHA consider whether, in light of alternative approaches, its standard is reasonably neces-

---

[6] A list of member companies is attached as Appendix B to this *amicus* brief.

[7] American Industrial Health Council v. Marshall, Civil Action No. H-80-144, Order filed August 5, 1980 (S.D. Tex.), *appeal docketed* August 13, 1980, No. 80-1880 (5th Cir.); American Petroleum Institute v. Occupational Safety and Health Administration, Nos. 80-3018 *et al.* (5th Cir.).

sary or appropriate? Specifically, must OSHA consider the effectivenes of alternatives and whether a significant risk would remain to justify imposing additional controls? Must OSHA consider whether its final standard would achieve a significant reduction in risk from the level that might remain under a less costly alternative? Second, must OSHA determine whether there is a reasonable relationship between the costs and the benefits of its standard?

AIHC submits that these questions should be answered in the affirmative. The Act requires a consideration of the significance of the risk, both at existing exposure levels and at levels occurring under reasonable alternative approaches. OSHA must find, after considering the alternatives and the degree of risk reduction they would achieve, that its standard is reasonably necessary or appropriate to remedy a remaining significant risk of material health impairment.

The Act also requires that a reasonable relationship be demonstrated between the costs and the benefits of the OSHA standard. We do not suggest that OSHA must engage in a strictly quantitative cost/benefit assessment. But as several courts have held, OSHA may not issue a standard until it has evaluated the benefits that will be gained and the resulting costs and has found a reasonable relationship between the two.

OSHA has interpreted the Act as foreclosing consideration of such factors. In its view the Act requires that a "risk free" level of exposure be mandated, or, if there is no known achievable "risk free" level, that exposure be reduced to the lowest feasible level. Because OSHA's interpretation is contrary to the language of the Act and the Congressional intent, it should be expressly rejected by this Court.

Moreover, the Court cannot conclude that OSHA did in fact consider alternative approaches, relative levels of risk, benefits and costs. OSHA's legal interpretation

of the mandate of section 6(b)(5) precluded a meaningful consideration of such factors. The decision of the court below should therefore be reversed.

ARGUMENT

I

OSHA FAILED TO COMPLY WITH SECTIONS 3(8) AND 6(b)(5) OF THE ACT IN ISSUING THE COTTON DUST STANDARD.

A. OSHA Misconstrued the Requirements of Sections 3(8) and 6(b)(5).

The cotton dust standard rests upon an underlying statutory construction identical to the OSHA cancer policy considered by the Court in *Benzene, supra.* OSHA's "dust control strategy" holds that because exposure to cotton dust causes respiratory diseases and because a risk free level of exposure has not been demonstrated, OSHA must mandate controls which will achieve the lowest feasible level. 43 *Fed. Reg.* 27358. In support of its use of this "dust control strategy," OSHA has cited a number of cases in which the OSHA cancer policy was upheld. The carcinogen cases, the Secretary has argued, approved the "determination to set a standard at the lowest feasible level where it was unknown whether a safe threshold for the substance at issue existed." [8]

The basic term "lowest feasible level" upon which OSHA's regulatory decisions are made appears nowhere in the Act. The statutory language provides:

> "The Secretary, in promulgating standards dealing with toxic materials or harmful physical agents un-

---

[8] *See* Brief for the Secretary of Labor, American Federation of Labor & Congress of Industrial Organizations v. Marshall, D.C. Cir. Nos. 78-1562 *et al.*, at 87 (January 26, 1979).

> der this subsection, shall set the standard which *most adequately* assures, *to the extent feasible*, on the basis of the best available evidence, that no employee will suffer *material* impairment of health or functional capacity even if such employee has regular exposure to the hazard dealt with by such standard for the period of his working life. . . ." 29 U.S.C. § 655(b)(5) (emphasis supplied).

OSHA has attempted to rewrite this statutory language to include a requirement that exposure be set at the lowest feasible level and to limit its discretion to the issues of technological and economic feasibility wherever a risk free level of exposure cannot be demonstrated. In adopting this "lowest feasible" approach, OSHA has ignored not only Section 3(8), but also the "most adequately assures," "feasible" and "material" language of Section 6(b)(5).[9]

The court below adopted OSHA's interpretation. *American Federation of Labor & Congress of Industrial Organizations* v. *Marshall*, 617 F.2d 636 at 654 (D.C. Cir. 1979). It upheld the "dust control strategy," *i.e.*, the "lowest feasible" requirement, as in accordance with the "special mandate" of the Act. *Id.* at 654-655. The court went on to consider only whether the levels selected were in fact the lowest feasible. *Id.* at 655-662.

Both OSHA and the court below failed to recognize that Sections 3(8) and 6(b)(5) preclude an absolute

---

[9] The impact of OSHA's "lowest feasible" approach is particularly noticeable in the generic carcinogen regulations. There OSHA has required that all standards relating to carcinogens be set at the lowest feasible level, regardless of the carcinogenic potency of the substance being regulated. An extremely weak carcinogen will be regulated to the same degree as an extremely potent carcinogen, without regard to the magnitude of the risk. In addition, if a "suitable substitute" exists, permissible exposure levels will be set at zero, effectively banning the substance. *See* 29 C.F.R. § 1990.142 (a)(2), 45 *Fed. Reg.* 5285-5286.

"lowest feasible" approach to workplace health and safety standards.[10] Section 3(8) provides that standards issued under Section 6(b)(5) will

> "require[] conditions, or the adoption or use of one or more practices, means, methods, operations, or processes, reasonably necessary or appropriate to provide safe or healthful employment and places of employment." [11]

Section 6(b)(5) requires that the Secretary

---

[10] In interpreting this statute, the courts are entitled to consider the construction which OSHA has placed upon Section 6(b)(5). However, it is beyond question that the "ultimate responsibility" for construing the Act belongs with this Court. Zuber v. Allen, 396 U.S. 168, 192-93 (1969). Agency interpretations "are not absolute rules of law . . . but are only helpful guides to aid courts in their tasks of statutory construction." Sims v. United States, 252 F.2d 434, 438 (4th Cir. 1958), *aff'd*, 359 U.S. 108 (1959). And in considering what, if any, weight should be assigned to an administrative construction, the courts should assess

> "the thoroughness evident in [the agency's] consideration, the validity of its reasoning, its consistency with earlier and later pronouncements, and all those factors which give it power to persuade, if lacking power to control." Skidmore v. Swift & Co., 323 U.S. 134, 140 (1944).

In the *Benzene* decision, a plurality of this Court concluded that, in light the Act and its legislative history, OSHA's contention that it was precluded from distinguishing between significant risks and those of a lesser degree was not entitled to deference. For similar reasons OSHA's lowest feasible interpretation is not entitled to deference.

[11] The court below interpreted this language as an open-ended grant of authority to impose any requirements that could be said to promote a safe workplace, including the rate retention provisions of the cotton dust standard. 617 F.2d at 674. We submit that Section 3(8) was not intended as such an open-ended grant of authority. If it were, the provision would be subject to challenge as an unconstitutional delegation of legislative power. *See Benzene, supra*, Rehnquist, J., concurring.

> ". . . set the standard which most adequately assures, to the extent feasible, on the basis of the best available evidence, that no employee will suffer material impairment of health or functional capacity . . ."

In addition to considering health effects, the Secretary must consider "the latest available scientific data in the field," "feasibility," and "experience gained under [the Act] and other health and safety laws." *Id.*

The plain meaning of these provisions, together with the legislative history,[12] demonstrates the error of OSHA's absolute "lowest feasible" approach. The Act requires the Secretary to take into account a number of considerations in addition to the two—safety and feasibility—by which the Secretary believes he is constrained. Moreover, Congress did not equate "safe" with "risk free," as OSHA does. As this Court held in *Benzene*, the Act, when read as a whole, authorizes the Secretary to issue standards only when they are reasonably necessary or appropriate to remedy significant risks of material health impairment.

B. OSHA Failed To Consider Adequately the Alternatives to its Lowest Feasible Approach.

In this case the textile industry proposed a comprehensive alternative approach to reduce the risk of material health impairment to a level which the industry contended was insignificant. When OSHA has been given a comprehensive, detailed alternative approach, supported by substantial evidence, it cannot find that its lowest feasible approach is reasonably necessary or appropriate without a careful consideration of the alternative.[13] If

---

[12] *See* Part II, *infra*.

[13] AIHC does not suggest that OSHA is required to perform a detailed risk assessment and cost/benefit analysis for every conceivable alternative. However, where a party has proposed a reasonable alternative or where other alternative approaches exist,

an alternative approach would reduce the risk to an insignificant level at a lower cost, then the OSHA standard would not be reasonably necessary or appropriate to remedy a significant risk. Moreover, if OSHA believes that a significant risk would remain under the alternative, it must find that that risk will be significantly reduced by its standard.[14]

Because of the Secretary's "lowest feasible" approach, OSHA failed to consider whether the final cotton dust standard was reasonably necessary or appropriate—in light of the industry alternative—to remedy a significant risk of material health impairment or to achieve a significant reduction in the risk that would remain under the industry alternative. The decision below should therefore be reversed.

II

OSHA MUST ASSESS THE COSTS AND BENEFITS OF ITS STANDARD.

The court below explicitly declared that OSHA is not obligated to undertake any cost/benefit analysis in support of its standards or even to consider whether the costs which would be imposed by such standards are reasonably commensurate with the benefits which they are expected to provide. 617 F.2d 636, 662-664. This holding was based in large part upon the conclusion that the requirement in Section 3(8) of the Act that an OSHA standard be "reasonably necessary or appropri-

---

the "reasonably necessary or appropriate" finding cannot be made without a thorough evaluation of such approaches. *See*, Dry Color Manufacturers Association v. Department of Labor, 486 F.2d 98, 107 (3d Cir. 1973).

[14] *Compare Benzene, supra*, Powell, J., concurring, 48 U.S.L.W. at 5037.

ate" imposes no constraints upon the agency's rulemaking authority. *Id.* at 663, 664 n.166. According to the court below, the only limit upon OSHA's authority to issue standards is OSHA's criterion of "feasibility." *Id.* at 663. Under OSHA's interpretation, upheld by the court below, a standard is not economically infeasible unless it threatens the survival of the affected industry as a whole. *Id.* at 661-62.

This interpretation is directly contrary to the intent of the Act. The statutory language and legislative history clearly indicate that Congress intended OSHA to consider the costs and the benefits of its workplace standards. Only standards which are reasonable—in terms of the benefits they will achieve and the costs they will impose—are authorized by the Act. Although OSHA's reasoning has been adopted by some courts, it has been rejected by others and has been repudiated by the Commission which Congress created to review the application of OSHA's standards in enforcement proceedings.

In the *Benzene* decision, this Court confirmed that the Act does not contemplate the creation of risk free workplaces. Rather, Congress intended that OSHA attempt to eliminate only significant risks.[15] By interpreting Sections 3(8) and 6(b)(5) of the Act as requiring that OSHA standards be issued only to eliminate or reduce "significant" risks, the Court made it clear that OSHA was not bound by a rigid formula in which there was no room for agency judgment. Instead, OSHA must analyze the risk and determine whether it is significant and whether the proposed standard will achieve a significant reduction.

Findings regarding significant risk and whether a standard is reasonably necessary or appropriate and

---

[15] *See Benzene, supra,* 48 U.S.L.W. at 5031 (plurality), 5037 (Burger, C.J., concurring), 5038 (Powell, J., concurring).

feasible cannot be made in the abstract. Congress expected the agency to assess the propriety of its standards in relation to their benefits and costs.[16]

A. The Statutory Language Requires That OSHA Exercise an Informed Judgment Regarding the Effects of its Standard.

Section 3(8), which defines the term "standard," mandates that standards must be "reasonably necessary or appropriate to provide safe or healthful employment and places of employment." 29 U.S.C. § 652(8). The use of the relative terms "reasonably necesary or appropriate" indicates that the decision whether to regulate a particular risk was intended to be primarily a question of evaluation and informed judgment. Congress clearly did not intend to create a statutory scheme calling for the sound exercise of administrative judgment, yet deliberately predetermine for OSHA the level of protection to be imposed by its standards.[17]

Further support for this interpretation may be found in Congress' use of the term "safe or healthful." Like "reasonably necessary or appropriate", this language also does not speak in absolutes. Neither "safe" nor "health-

---

[16] In urging that OSHA must consider both costs and benefits in determining whether its standards are "feasible" and "reasonably necessary or appropriate", AIHC is not suggesting that the Act places the Secretary in a mathematical straitjacket. Whether costs are commensurate with benefits is largely a question of expert judgment enlightened by an evaluation of the facts, subject to appropriate judicial review.

[17] *See* Currie, *OSHA*, 1976 Am. Bar Foundation Research J. 1107, 1134. (Section 3(8) "does not simply require whatever is 'necessary' to achieve the requisite level of safety, it requires what is 'reasonably necessary or appropriate.'" And "[w]hat is 'appropriate' may be what is desirable in light of feasibility or costs; what is 'reasonably necessary' may be what is both necessary and reasonable.")

ful" is the equivalent of "risk-free." *See e.g., Benzene, supra,* 48 U.S.L.W. at 5031 (plurality); 5037 (Burger, C.J., concurring); 5038 (Powell, J., concurring). Accordingly, there is a need for the exercise of reasoned and informed judgment in determining what is "safe or healthful." *See* Currie, *supra,* at 1134. As Judge Leventhal explained in the context of drug safety, a determination of what is safe "inevitably means calculating whether the benefits which the drug produces outweigh the costs of its restricted use." *Hess & Clark* v. *Food & Drug Administration,* 495 F.2d 975, 993-94 (D.C. Cir. 1974).

That OSHA was directed to weigh costs and benefits as part of its standard setting process is also confirmed by a reading of Section 6 as a whole. That section requires the Secretary to set standards so as to "most adequately" assure, as far as "feasible", that employees will not suffer "material" impairment. The use of those terms indicates that a balancing of various competing values was contemplated. Although one meaning of the term "feasible" is "capable of being done," it is also defined as being synonymous with such terms as "practicable," "suitable" and "reasonable." *Webster's New Collegiate Dictionary* (1979); *The Shorter Oxford English Dictionary* (1944). The legislative history demonstrates that it was the latter sense of the word "feasible" that Congress had in mind when it created the Act.

Moreover, factors which the Secretary was directed by Section 6 to take into account in setting standards include, in addition to health considerations, "the latest available scientific data," "feasibility" of the standard and "experience gained under this and other health and safety laws." Inclusion of these factors provides further indication that Congress expected OSHA standards to

be the result of an informed exercise of agency judgment.[18]

B. The Legislative History Demonstrates That Congress Intended OSHA to Balance the Negative and Positive Effects of Its Standard.

The legislative history of the Act demonstrates that Congress intended OSHA to limit its concern to significant risks which it could significantly reduce. *See Benzene*, 48 U.S.L.W. at 5032-34 (plurality); 5037 (Burger, C.J., concurring); 5038 (Powell, J., concurring). As Mr. Justice Powell also recognized, this same legislative history supports, if not compels, the conclusion that Congress did not anticipate or authorize the imposition of standards whose costs are grossly disproportionate to the benefits which they offer. *Id.* at 5038 (Powell, J., concurring).

The requirement of feasibility was added to Section 6(b)(5) in the Senate Labor and Public Welfare Committee as a compromise to allay the minority's concerns that the bill would impose absolute requirements upon OSHA and would not permit a consideration of such issues as reasonableness and practicality.[19] The bill was

---

[18] It should also be noted that Section 6(g) of the Act explicitly directs OSHA to set priorities for its regulations so that the more serious hazards will be addressed first. This implicitly requires the Agency to assess both costs and benefits in setting priorities. *Benzene, supra*, 48 U.S.L.W. at 5031 n.49. It is unlikely that Congress would decree OSHA to consider such factors in determining when to regulate but purposely preclude the Agency from taking the same factors into account in deciding how to regulate.

[19] The original administration bill, authored by Senator Javits, required an independent board to render what he described as "a report on the feasibility" of proposed standards. 115 Cong. Rec. 22517 (daily ed., Aug. 6, 1969). As so used, feasibility was to include technical feasibility, reasonableness and practicality. S. 2193, reprinted in *Legislative History of the Occupational Safety and*

accordingly amended so as to mandate that "[t]he Secretary . . . shall set the standard which most adequately and feasibly assures . . . that no employee will suffer any impairment of health or functional capacity." *Leg. Hist.* at 242.

Subsequent changes in the bill were made so that it would be acceptable to those who had insisted upon a requirement of reasonableness. Senator Dominick, among others, was concerned with the use of the absolute term "any" and with the placement of the term "feasibly," which, as written, could have been construed so as to make the bill impractical and unworkable. Thus, Senator Dominick stated,

> "No job can be rendered perfectly safe, and no employee can be rendered perfectly secure from injury. . . . It is unrealistic to attempt, as this section apparently does, to establish a utopia free from any hazards." *Leg. Hist.* at 480.

Citing possible interpretations of this language, Senator Dominick was concerned that it might be applied to require that health hazards be prevented despite the impractical social and economic costs of doing so. He suggested that the bill might be interpreted as authorizing a standard designed to prevent mosquito and fly bites, *Leg. Hist.* at 345, or as requiring that the risk of an automobile accident be eliminated for a bus driver. *Id.* at 423. Senator Dominick stated that the section

> "could be read to require the Secretary to ban all occupations in which there remains *some* risk of injury, impaired health, or [diminished] life expectancy . . . . In addition, in many cases, the

---

Health Act of 1970, ("*Leg. Hist.*") 92d Cong., 1st Sess., 38-39 (1971) (Comm. Print). Although Senator Javits failed in his attempt to get the independent board concept accepted, his feasibility requirement was adopted by the Committee.

> standard which might most 'adequately' and 'feasibly' assure the elimination of the danger would be the prohibition of the occupation itself." *Leg. Hist.* at 367 (emphasis in original).

Because of these concerns, Senator Dominick sponsored an amendment which substituted the word "material" for the word "any" and which replaced the word "feasibly" with the term "to the extent feasible." This, he stated, was an accurate description of the Committee's original intent. He described that intent as follows:

> "What we were trying to do in the bill—unfortunately, we did not have the proper wording or the proper drafting—was to say that when we are dealing with toxic agents or physical agents, we ought to take such steps as are *feasible and practical* to provide an atmosphere within which a person's health or safety would not be affected." *Leg. Hist.* at 502 (emphasis added).[20]

Other Senators also expressed views indicating that cost considerations were to be taken into account. Senator Yarborough noted that the amended section required "reasonable safety standards." *Leg. Hist*, at 512. Senator Williams, a sponsor of the bill, declared that:

> "[o]ur bill is fair and reasonable. It is a good-faith effort to balance the needs of workers to have a sa[f]e and healthy work environment against the

---

[20] By describing the mandated steps as those that are "feasible and practical," Senator Dominick demonstrated that the use in section 6(b)(5) of the word "feasible" was intended to encompass the criteria of technical feasibility, reasonableness and practicality contained in Senator Javits' bill. *See* note 19, *supra*. This statement not only indicates that Congress desired practical and reasonable standards based upon a consideration of costs and benefits, but also refutes OSHA's contention that a special, high degree of control was mandated for toxic substances. *See Benzene, supra*, 48 U.S.L.W. at 5033 n.54 (plurality).

requirement of industry to function without undue interference." *Leg. Hist.* at 435.

As Mr. Justice Powell noted, "[t]here could be no such 'balance' if OSHA were authorized to impose standards without regard to economic consequences short of serious dislocation." *Benzene, supra,* 48 U.S.L.W. at 5038 n.5.

C. Several Circuits Have Required OSHA to Consider Costs and Benefits.

Although there is a conflict among the circuits as to whether OSHA must consider the costs and the benefits of its standards, a number of circuits have rejected OSHA's inflexible interpretation of the Act and have required that the agency estimate the expected health benefits and determine that they bear a reasonable relationship to the anticipated costs.[21] *See American Petroleum Institute* v. *Occupational Safety & Health Administration,* 581 F.2d 493 (5th Cir. 1978), *aff'd on other gds. sub nom., Industrial Union Department* v. *American Petroleum Institute,* 48 U.S.L.W. 5022 (June 24, 1980); *RMI Co.* v. *Secretary of Labor,* 594 F.2d 566 (6th Cir. 1979); *United Parcel Service of Ohio, Inc.* v. *Occupational Safety & Health Review Commission,* 570 F.2d 806 (8th Cir. 1978); *Turner Co.* v. *Secretary of Labor,* 561 F.2d 82 (7th Cir. 1977);[22] *Florida Peach Growers*

---

[21] Those courts which have found that no balancing obligation exists have, like the court below, failed to recognize the "reasonably necessary or appropriate" language as imposing a limitation on OSHA's discretion to issue standards.

[22] The court below attempted to distinguish *Turner* on the ground that it involved a non-fatal hazard, but did not suggest a statutory basis for such distinction. Although the *Turner* court did note that noise was not life-threatening, it did so only in the context of deciding whether, in that particular case, the risk was sufficiently large to justify the costs of compliance (which were, by comparison with the cotton dust standard, relatively modest). There was no suggestion in *Turner* that the balancing approach

Association v. *Department of Labor*, 489 F.2d 120 (5th Cir. 1974).

D. Administrative Interpretation Supports a Requirement That OSHA Consider Costs and Benefits.

The Occupational Safety and Health Review Commission ("OSHRC" or the "Commission"), an expert body set up by Congress to oversee OSHA enforcement actions and to prevent abuses of power by the agency, has also rejected OSHA's interpretation. In *Continental Can Co.*, 4 OSHC (BNA) 1541, 1976-77 OSHD (CCH) ¶ 21,009 (1976), the Commission rejected OSHA's interpretation of the term "feasible" as permitting the imposition of whatever costs are necesssary to eliminate identified hazards so long as the expenditures for each hazard can be borne without putting the employer's financial condition in jeopardy. The Commission stated that:

> "Clearly, employers have finite resources available for use to abate health hazards. And just as clearly if they are to be made to spend without limit for abatement of this hazard their financial ability to abate other hazards, including life threatening hazards, is reduced." 4 OSHC (BNA) at 1547, 1976-77 OSHD (CCH) at 25,256.

The Commission has consistently taken the position that OSHA's "massive dislocation" interpretation is at odds with the overall intent of the Act.[23]

---

was to be limited to such non-life threatening hazards. Indeed, the court's definition of the term "feasible" as meaning "practicable" demonstrates that a balancing of costs and benefits is required for all standards to which the term "feasible" applies.

[23] *See, e.g., KLI, Inc.*, 6 OSHC (BNA) 1097, 1977-78 OSHD (CCH) ¶ 22,350 (1977), *appeal dismissed*, 601 F.2d 589 (6th Cir. 1979); *West Point Pepperell Inc.*, 5 OSHC (BNA) 1257, 1977-78 OSHD (CCH) ¶ 21,733 (1977), *aff'd, Marshall* v. *West Point Pepperell*, 588 F.2d 979 (5th Cir. 1979); *Great Falls Tribune Co.*, 5

E. Similar Statutes Have Been Interpreted as Requiring a Cost/Benefit Analysis.

Courts have interpreted other, similar statutes as requiring agencies to consider both costs and benefits and to attempt to balance the two. The Consumer Product Safety Act, which requires that Consumer Product Safety standards be "reasonably necessary to eliminate or reduce an unreasonable risk of injury . . .," 15 U.S.C. § 2058(c)(2)(A), has been interpreted as requiring the Consumer Product Safety Commission (CPSC) to balance costs and benefits in making its decisions. *See Aqua Slide "N" Dive* v. *Consumer Product Safety Commission*, 569 F.2d 831, 839, 844 (5th Cir. 1978); *D.D. Bean & Sons* v. *Consumer Product Safety Commission*, 574 F.2d 643 (1st Cir. 1978).[24] A similar result was reached by the D.C. Circuit with respect to the Federal Hazardous Substances Act in *Forester* v. *Consumer Product Safety Commission*, 559 F.2d 774, 789 (D.C. Cir. 1977).

The court below, in an attempt to evade the logic of this comparison, distinguished the statutes which CPSC administers because of their use of the term "unreasonable risk" in comparison with the "safe or healthful employment and places of employment" language of Section 3(8). However, in *Aqua Slide* and in *D.D. Bean, supra*, the courts rested their conclusion upon the "reasonably necessary" language of the Consumer Product Safety Act, which is identical to the language found in Section

---

OSHC (BNA) 1443, 1977-78 OSHD (CCH) ¶ 21,844, *appeal docketed*, No. 77-2566 (9th Cir. 1977); *Castle & Cooke Foods*, 5 OSHC (BNA) 1435, 1977-78 OSHD (CCH) ¶ 21,854 (1977); *Worley Brothers Granite Co.*, 4 OSHC (BNA) 2042 (1977); *Republic Granite Co., Inc.*, 4 OSHC (BNA) 1711, 1976-77 OSHD (CCH) ¶ 21,167 (1976).

[24] "Only after the existence of a hazard and the likelihood of its reduction at a reasonable cost have been established by the Commission may it be said that [its] requirements are *'reasonably necessary.'*" 574 F.2d at 649 (emphasis supplied).

3(8). Moreover, little significance can be attributed to the omission of the term "unreasonable risk" in the Act. Obviously, Congress did not intend, by using the term "safe," to require the elimination of "reasonable" risks.

F. Practical Considerations Demonstrate the Need for a Cost/Benefit Analysis.

In rejecting petitioners' contention that OSHA is obligated to balance reasonably the costs and benefits of its standards, the court below pointed to what it considered to be the practical shortcomings and uncertainties associated with the use of cost/benefit analysis. In so doing, the court misconceived the nature of the analysis which the agency was being asked to perform.[25] And more importantly, it failed to perceive that the refusal to attempt any balancing will, in the long run, result in a misallocation of resources and a lower degree of both total worker protection and societal well-being.

The courts that have recognized the requirement of a cost/benefit analysis have not required the Secretary to quantify every cost and benefit or to engage in a formal cost/benefit assessment. Although quantification should be attempted as far as possible, the Secretary is only required to identify and assess the various costs and benefits of a proposed standard and of reasonable alternatives to the extent practicable in a given case. Surely no less can be expected of any rational decision-making process. None of the cases cited above have demanded a

---

[25] The court interpreted petitioner's claim that OSHA must keep some proportion between the costs and benefits of its standards as a demand that the Agency be able to support its standard by reference to a formal, quantifiable cost/benefit analysis. 617 F.2d at 662. This, it feared, would reduce the agency's responsibility to that of merely providing a quantification of risks and benefits and deciding whether the benefit/cost ratio was greater than unity. *Id.* at 665. The court clearly misconceived the type of cost/benefit analysis which the Act contemplates.

more formal cost/benefit assessment. It is clear that such an analysis would not unduly constrain OSHA in making its regulatory decisions.[26]

Moreover, there are limited resources for meeting safety needs, and there are other societal values that must not be foresaken. As the Council on Wage and Price Stability (COWPS) explained in its comments on the proposed cotton dust standard:

> "To the extent that the costs of a proposed regulation exceed the benefits, resources would be withdrawn from other markets where their use is valued more highly. This lessens the overall efficiency with which society's resources are used and dampens the prospects for improvements in productivity." Comments of the Council on Wage and Price Stability on Proposed Standard for Exposure to Cotton Dust at 4 (June 17, 1977).[27]

See also the COWPS comments on the OSHA acrylonitrile standard:

> ". . . [R]isks are just one element of the total work environment. An attempt to equalize one aspect of an interrelated system will inevitably lead to inequalities in the other aspects such as wages, job security, fringe benefits and perhaps risks from other

---

[26] As the National Academy of Sciences has explained, such an analysis

> "is not a rule or formula which would make the decision or predetermine the choice for the decisionmaker. Rather, it refers to the systematic analysis and evaluation of alternative courses of action drawing upon the analytical tools and insights provided by economics and decision theory. It is a framework and a set of procedures to help organize the available information." National Academy of Sciences, "Decision Making for Regulating Chemicals in the Environment," 39 (1975).

[27] COWPS also stated:

> ". . . [T]he usefulness of cost-effectiveness analysis can only be realized when alternative approaches to standard setting are fully considered." *Id.* at 23.

types of hazards." Report Submitted by the Council on Wage and Price Stability on behalf of the Regulatory Analysis Review Group in regard to the Proposed Standard for Occupational Exposure to Acrylonitrile at 20 (May 19, 1978).

Thus, the refusal to perform cost/benefit analysis or to balance the benefits and costs may well be to the ultimate detriment of the very workers that OSHA is enjoined to protect.

Failure to balance costs and benefits will also have other untoward social effects. Worker safety is only one of a myriad of socially desirable goals. A risk free workplace can be pursued only at the expense of not pursuing other aims. Certainly Congress, when it enacted the Act, did not intend to prevent American industry from remaining competitive internationally or from continuing to provide employment for the nation's workforce. *See Benzene, supra,* 48 U.S.L.W. at 5038 n.6 and accompanying text (Powell, J. concurring).

In addition, cost/benefit analyses are used regularly by several other agencies in making regulatory decisions. The Environmental Protection Agency, for example, performs cost/benefit analyses under a number of the statutes which it administers. Except where limited by specific congressional mandates, such as the Delaney Clause, the Food and Drug Administration also utilizes cost/benefit analyses to ascertain the safety of products falling within its jurisdiction. The Nuclear Regulatory Commission has adopted a monetary value for exposure reduction and has praised the use of cost/benefit analysis in defining levels of radiation exposure "as low as is reasonably achievable." [28]

Cost/benefit analysis is a useful and necessary part of decision-making, whether private or regulatory. Al-

---

[28] 40 *Fed. Reg.* 19439 (May 5, 1975); 43 *Fed. Reg.* 22254 (May 24, 1978).

though there are uncertainties involved in trying to use cost/benefit comparisons, they are still an invaluable tool. This Court should not espouse an interpretation of the Act which would deny the agency and affected employers and employees the benefits of a clear consideration of the benefits to be derived from a standard, together with the resulting costs.

III

OSHA'S INTERPRETATION OF THE ACT PRECLUDED IT FROM ADEQUATELY CONSIDERING ALTERNATIVE APPROACHES, COSTS AND BENEFITS.

In its response to the petitions for *certiorari*, OSHA referred to the preamble to the cotton dust standard and suggested that it has satisfied the *Benzene* requirement of a finding of significant risk and of a significant reduction in risk.[29] A careful review of the OSHA decision below, as well as its benzene standard and its generic carcinogen regulations, however, demonstrates that the agency has consistently made its regulatory decisions on the basis of its rigid lowest feasible interpretation without regard to the level of risk or to the reduction in risk.

OSHA apparently views this Court's ruling in *Benzene* regarding its authority to regulate only "significant" risks as requiring merely a formality. In OSHA's words,

> "A plurality of the Court has now concluded that OSHA failed to make an adequate formal finding that the standard would remedy a significant health risk." [30]

---

[29] Brief for the Federal Respondents at 5, n.4.

[30] "OSHA Comments on Supreme Court Benzene Decision," OSHA press release, July 2, 1980 at 1.

While conceding that a "formal finding" is now required, OSHA suggested that it would continue to regulate to the lowest feasible level. It explained:

> ". . . [W]e intend to press forward in regulating benzene, as well as in regulating other cancer causing and toxic substances in order to provide to employees the level of protection called for by the statute." [31]

In light of OSHA's consistent interpretation of Section 6(b)(5), it is clear that the agency contemplates that it need do no more than render meaningless "formal findings," while continuing to do what it believes it must do under the Act—require that exposure be reduced to the lowest feasible level. The Act, in OSHA's view, does not require *or permit* a consideration of various risk levels or of costs and benefits. Thus OSHA cannot now claim that it performed the assessment or made the findings that the Act requires. Such considerations have been foreclosed by OSHA's consistent interpretation of its authority under Section 6(b)(5).

The inconsistency between OSHA's discussion of costs and benefits and its interpretation of the Act is obvious. The agency suggested in its preamble that "a systematic evaluation of costs and benefits," is "to be encouraged." Yet in the same paragraph OSHA states that its standards "must assure maximum benefit . . . *constrained only by the limits of feasibility.*" 43 *Fed. Reg.* 27378 (emphasis supplied). Clearly, a cost/benefit an-

---

[31] *Id.* at 2. *See also,* the government's reply brief in *Benzene,* where OSHA urged the Court to accept its understanding of the Congressional intent:

> "There is nothing unreasonable about a legislative determination that *requires* standards to be set as low as technologically and economically feasible . . . ." Reply Brief for the Federal Parties at 21 (emphasis supplied).

alysis can play no meaningful part if feasibility is the only constraint.

Similarly, OSHA's discussion of various studies cannot be considered to be an evaluation of alternative levels of risk. If no risk free level is known, OSHA is required by its reading of the Act to reduce exposure levels to the lowest feasible level. The extent to which the standard reduces the risk—indeed whether the standard significantly reduces the risk—is irrelevant to OSHA.

Although the agency has sugested that, in setting its standard at the lowest feasible level, it is making a discretionary decision regarding appropriate exposure levels,[32] OSHA's words must not obfuscate the necessary consequences of its legal interpretation. Under its reading of Section 6(b)(5), OSHA's only policy decisions involve questions of feasibility. Costs are relevant only to show economic feasibility, as OSHA defines the term. Benefits and relative levels of risk are irrelevant.[33] This narrow and fundamentally incorrect view of what Congress intended OSHA to do under the Act has fatally infected the agency's approach to this rulemaking.

The Court should recognize OSHA's reference to "formal findings" and its cost-benefit language as an attempt, *ex post facto*, to make its lowest feasible standard appear to comply with the Act. Any findings regarding significant risks and the balance between costs and benefits must be "supported by substantial evidence in the record considered as a whole." 29 U.S.C. § 655(f). In light of OSHA's interpretation, the only findings it could have

---

[32] 43 *Fed. Reg.* 27379.

[33] *See, Benzene*, plurality opinion, 48 U.S.L.W. at 5033, n.58 ("The Government also states that it is OSHA's policy to attempt to quantify benefits wherever possible. While this is certainly a reasonable position, it is not consistent with OSHA's own view of its duty under § 6(b)(5). In light of the inconsistencies of OSHA's position and the legislative history of the Act, we decline to defer to the Agency's interpretation.") *See also, Id.* at 5029, n.39.

made were limited to the narrow range of factual issues that interpretation left open. OSHA cannot now contend that it made other findings based upon the record, when its interpretation precluded the consideration of such issues. Hence OSHA could not have made the findings or analysis required by the Act.

CONCLUSION

For the foregoing reasons, AIHC submits that the decision of the court below should be reversed, and the court below should be directed to remand the record to OSHA for reconsideration.

Respectfully submitted,

ROBERT C. BARNARD
CLEARY, GOTTLIEB, STEEN & HAMILTON
1250 Connecticut Avenue, N.W.
Washington, D.C. 20036
(202) 828-3000

Counsel for The American Industrial Health Council, Inc.

Of Counsel:

RICHARD DEC. HINDS
R. BRUCE DICKSON
ERIC C. JEFFREY

APPENDICES

APPENDIX A

STATUTORY PROVISIONS

Section 3(8) of the Occupational Safety and Health Act of 1970 (the Act) provides:

> The term "occupational safety and health standard" means a standard which requires conditions, or the adoption or use of one or more practices, means, methods, operations, or processes, reasonably necessary or appropriate to provide safe or healthful employment and places of employment. (29 U.S.C. § 652(8))

Section 6(b)(5) of the Act provides:

> The Secretary, in promulgating standards dealing with toxic materials or harmful physical agents under this subsection, shall set the standard which most adequately assures, to the extent feasible, on the basis of the best available evidence, that no employee will suffer material impairment of health or functional capacity even if such employee has regular exposure to the hazard dealt with by such standard for the period of his working life. Development of standards under this subsection shall be based upon research, demonstrations, experiments, and such other information as may be appropriate. In addition to the attainment of the highest degree of health and safety protection for the employee, other considerations shall be the latest available scientific data in the field, the feasibility of the standards, and experience gained under this and other health and safety laws. Whenever practicable, the standard promulgated shall be expressed in terms of objective criteria and of the performance desired. (29 U.S.C. § 655(b)(5))

Section 6(f) of the Act provides:

> Any person who may be adversely affected by a standard issued under this section may at any time prior to the sixtieth day after such standard is promulgated file a petition challenging the validity of such standard with the United States court of appeals for the circuit wherein such person resides or has his principal place of business, for a judicial review of such standard. A copy of the petition shall be forthwith transmitted by the clerk of the court to the Secretary. The filing of such petition shall not, unless otherwise ordered by the court, operate as a stay of the standard. The determinations of the Secretary shall be conclusive if supported by substantial evidence in the record considered as a whole. (29 U.S.C § 655(f))

Section 6(g) of the Act provides:

> In determining the priority for establishing standards under this section, the Secretary shall give due regard to the urgency of the need for mandatory safety and health standards for particular industries, trades, crafts, occupations, busineses, workplaces or work environments. The Secretary shall also give due regard to the recommendations of the Secretary of Health, Education, and Welfare regarding the need for mandatory standards in determining the priority for establishing such standards. (29 U.S.C. § 655 (g))

APPENDIX B

MEMBER COMPANIES

AMERICAN INDUSTRIAL HEALTH COUNCIL

Air Products & Chemicals, Inc.
Allen Extruders, Inc.
Allied Chemical Corp.
American Acrylic Corp.
American Chemical & Refining Co., Inc.
American Cyanamid Co.
American Hoechst Corp.
AMOCO Chemical Corp.
Apollo Colors, Inc.
ARCO Chemical Co.
Ashland Chemical Co., Div. of
Ashland Oil, Inc.
Badische Corp.
Birchwood Laboratories, Inc.
Boehringer Ingelheim, Ltd.
Borg-Warner Chemicals, Div. of
Borg-Warner Corp.
Bristol-Myers
Buffalo Color Corp.
Burlington Industries, Inc.
Burroughs Wellcome Co.
Carstab Corp.
Carus Corp.
Celanese Corp.
Champion International Corp.
Chattem, Inc.
Chemical Exchange Co., Inc.
Chemplex Co.
Chevron Chemical Co.
Ciba-Geigy Corp.
Cities Service Co.
Conoco Chemicals Co.

Cordova Chemical Co.
Coulton Chemical Corp.
Cyclo Chemicals Corp.
Diamond Shamrock Corp.
Dixie Chemical Co.
Dow Chemical, U.S.A.
Dow Corning Corp.
E. I. du Pont de Nemours & Co.
Eastman Kodak Co.
El Paso Products Co.
Essex Chemical Corp.
Ethyl Corp.
Exxon Chemical Co., U.S.A.
Firestone Tire & Rubber Co.
First Chemical Corp.
FMC Corp.
Frederick Gumm Chemical Co., Inc.
General Electric Co.
Georgia Pacific Corp.
Goodrich Chemical Co., B.F.
Goodyear Tire & Rubber Co.
W.R. Grace & Co.
Grantham, Inc.
Great American Chemical Corp.
Great Lakes Carbon Corp.
Guardian Chemical Corp.
Gulf Oil Corp.
Halcon Research & Development Corp.
Heatbath Corp.
Henkel Corp.
Hercules, Inc.
Hoffman-La Roche, Inc.
Hooker Chemicals, & Plastics Corp.
Hughson Chemicals, Lord Corp.
ICI Americas, Inc.
International Minerals & Chemical Corp.
Kamco Plastics, Inc.

Kay-Fries, Inc.
Kenrich Petrochemicals, Inc.
Koppers Company, Inc.
Linden Chemicals and Products, Inc.
Loctite Corp.
Mallinckrodt, Inc.
Merck & Co., Inc.
Merichem Co.
Mobay Chemical Corp.
Mobil Chemical Co.
Monsanto Co.
Mooney Chemicals, Inc.
Morton Chemical
NALCO Chemical Co.
National Distillers & Chemical Corp.
Nepera Chemical Co., Inc.
Neville Chemical Co.
Northern Petrochemical Co.
Olin Corp.
Owens-Corning Fiberglas Corp.
Penick Corp.
Pennwalt Corp.
Petrolite Corp.
Pfister Chemical Corp.
Pfizer, Inc., Chemicals Div.
Phillips Chemical Co., Div. of
Phillips Petroleum Co.
Pilot Chemical Co.
Pope Chemical Corp.
PPG Industries, Inc.
Pressure Vessel Services, Inc.
Procter & Gamble Co.
Reilly Tar & Chemical Corp.
Republic Steel Corp.
Resources Conservation and Recovery Corp.
Revlon Foundation
R. J. Reynolds Industries, Inc.

Rhone Poulenc, Inc.
Rohm & Haas Co.
Ruetgers-Nease Chemical Co., Inc.
Saban Electric Corp.
Schering Plough Corp.
Shell Chemical Co.
SOLTEX Polymer Corp.
Specialty Products Co.
Standard Oil Co. (Ohio)
Stauffer Chemical Co.
R. R. Street and Co., Inc.
Sun Chemical Corp.
SunOlin Chemical Co.
Sunset Plastic Products
Tenneco Chemicals, Inc.
3M Co.
Paul Uhlich & Co.
Union Carbide Corp.
U.S. Borax
United States Steel Corp.
Univar Corp.
R. T. Vanderbilt Co., Inc.
Velsicol Chemical Corp.
Virginia Association of Launderers and Cleaners, Inc.
Virginia Chemicals, Inc.
Vulcan Materials Co., Chemicals Div.
Witco Chemical Corp.

LIMITED

Ansul Co., The
Certainteed Corp.
Ferro Corp.
Fisher Scientific Co.
National Steel Corp.
Norton Co.